

Full-Time PhD with an Industrial Sponsor

Company: Transport East / Arup

Location: London

Duration: 3 years Full-Time

Commencing: Sept/Oct 2023

Application deadline: **TBC**

Annual Stipend: **TBC**

Supervisors: Prof Adam Dennett, Dr Esra Suel, Dr Gerry Casey (Arup)

We are pleased to offer a full-time PhD at the Bartlett Centre for Advanced Spatial Analysis (CASA), UCL, in partnership with [Transport East and Arup](#). Transport East is the Sub-national Transport Body for Norfolk, Suffolk, Essex, Southend-on-Sea and Thurrock. The partnership provides a single voice for councils, business leaders and partners on the region's transport strategy and strategic transport investment priorities, working in close collaboration with the government and the rest of the UK. Arup is a global collective of designers, engineering and sustainability consultants, advisors and experts dedicated to sustainable development, and to using imagination, technology and rigour to shape a better world.

The Project

Rarely are socio-economic impacts measured when assessing the outcomes of policies addressing decarbonisation goals. This PhD, in partnership with Arup and their City Modelling Lab and Transport East, will address this big knowledge gap through tackling the question – what are the social and spatial equity impacts of a transition towards net-zero transportation systems in the UK? Recognising that transport systems are integral to all settlements ranging cities, towns, to rural areas - is it likely that positive externalities might emerge, for example through improving public transport which most positively effects those with the least access to transport services; or will some negative impacts occur, for example in some of the most rural and isolated communities which might be the slowest to adopt electrification or other decarbonising technologies? And how might we develop a consistent way of measuring these effects?

There will be a geography to this which we are yet to uncover and the focus will be on the east region. With other things being equal, some parts of the UK are bound to have different experiences of the socio-economic impacts of decarbonisation relative to others – and for successful policy interventions to be made, we need to have a better understanding of how these geographies vary and for which socio-economic dimensions – will this matter more for the distribution and types of jobs that could shift towards more home-working? Are impacts felt more noticeably in areas that already experience good public transit systems vs those which are served poorly. What knock-on effects could these shifts have for example in potentially increasing green economy jobs on the coast near offshore windfarms?

Agent-Based Models (ABMs) are state-of-practice models used for policy evaluations by transport planning authorities. While ABMs are established methods and versions of these models exist in practice settings, we expect this research to substantially build on what has been done to date through incorporating what may have been thought of as secondary outcomes in the past, into the primary evaluation process. In this project, the outcome of interest will be social inequalities as opposed to transit volume aggregates or travel time averages. We are interested in quantifying things like changes in travel time for different population segments or jobs available within a distance threshold from poor vs. rich neighbourhoods. Through close collaborations with our project partners, Transport East and Arup City Modelling Lab, the developed metrics will be used in practice to evaluate real policy scenarios and incorporated into agent-based transport simulation models that are being maintained and actively used for policy decision making.

To apply:

Applicants would normally be expected to hold (or nearing completion) an undergraduate degree in a relevant discipline (such as Geography, Planning, Economics, Political Science, Social Science, Computer Science, Mathematics, Statistics, Physics) at 2:1 or above. Masters degree or other relevant experience would be an advantage.

For any informal enquiries about the studentship, please contact Prof Adam Dennett in CASA – a.dennett@ucl.ac.uk